

WHAT IS CLAIMED IS:

1. An information recording apparatus comprising:

a substitute information generating device for generating  
5 substitute information by using identification information unique to  
each of information recording media in which recording information is  
to be recorded;

a substituting device for generating substituted recording  
information by substituting the generated substitute information for  
10 part of the recording information; and

a recording device for recording the generated substituted  
recording information in the information recording medium  
corresponding to the identification information used for the generation  
of the substitute information.

2. The information recording apparatus according to Claim 1,  
further comprising a generating device for encrypting the recording  
information by using predetermined key information to generate  
encrypted recording information, wherein the substituting device  
20 generates the substituted recording information by substituting the  
generated substitute information for part of the generated encrypted  
recording information, and the recording device records the key  
information, together with the generated substituted recording  
information, in the information recording medium corresponding to the  
25 identification information used for the generation of the substitute  
information.

3. The information recording apparatus according to Claim 2, wherein the substitute information generating device generates the substitute information including the key information.

5 4. The information recording apparatus according to Claim 2, further comprising a key information encrypting device for encrypting the key information by using the identification information to generate encrypted key information, wherein the recording device records the generated encrypted key information in place of the key information, in  
10 the information recording medium.

15 5. The information recording apparatus according to Claim 4, further comprising an identification information encrypting device for encrypting the identification information by performing a predetermined encrypting process to generate encrypted identification information, wherein the key information encrypting device encrypts key information by using the generated encrypted identification information to generate the encrypted key information.

20 6. The information recording apparatus according to Claim 1, wherein the substitute information generating device generates the substitute information by using encrypted identification information obtained through a predetermined encrypting process performed to the identification information.

25 7. The information recording apparatus according to Claim 5, wherein the encrypting process is a process to encrypt the identification

information by using a predetermined unidirectional encrypting function.

8. The information recording apparatus according to Claim 1,  
5 further comprising an adding device for adding a correction code for error correction to the recording information to generate added recording information, wherein the substituting device substitutes the generated substitute information for part of the added record information to generate the substituted recording information.

10 9. The information recording apparatus according to Claim 1, wherein the recording device records the identification information used for the generation of the substitute information, together with the generated substituted recording information, in the information  
15 recording medium corresponding to the identification information.

10. The information recording apparatus according to Claim 1, wherein the identification information is recorded in advance on the corresponding information recording medium, and the substitute  
20 information generating device detects the recorded identification information to use it for the generation of the substitute information.

11. The information recording apparatus according to Claim 1, wherein the substituting device varies a mode of the substitution using  
25 the substitute information by using the identification information.

12. An information recording apparatus comprising:

a generating device for encrypting recording information to be recorded in an information recording medium by using a predetermined key information to generate encrypted recording information;

an encrypted key information generating device for encrypting the key information by using identification information recorded on the information recording medium as being unique to each of the information recording media to generate encrypted key information; and

a recording device for recording the generated encrypted recording information and the generated encrypted key information, in the information recording medium corresponding to the identification information used for the generation of the encrypted key information.

13. The information recording apparatus according to Claim 12, further comprising a substituting device for substituting the generated encrypted key information for part of the generated encrypted record information to generate substituted recording information, wherein the recording device records the generated substituted recording information in the information recording medium corresponding to the identification information used for the generation of the encrypted key information.

14. An information recording medium comprising:

an information recording region for recording substituted record information obtained by substituting substitute information for part of recording information, the substitute information generated by using identification information unique to each of the information recording media in which the recording information is to be recorded; and

an identification information recording region in which the identification information corresponding to the information recording medium is recorded.

5 15. The information recording medium according to Claim 14, wherein information recorded in the information recording region is the substituted recording information obtained by substituting the generated substitute information for part of the encrypted recording information obtained through the encryption of the recording information by using the predetermined key information.

16. An information recording medium comprising:

(i) an information recording region for recording encrypted recording information obtained through encryption of recording information to be recorded in the information recording medium by using a predetermined key information and

encrypted key information obtained through encryption of the key information by using identification information unique to each of the information recording media; and

20 (ii) an identification information recording region in which the identification information corresponding to the information recording medium is recorded.

25 17. An information reproducing apparatus for reproducing information from an information recording medium in which substituted recording information obtained by substituting substitute information generated by using identification information unique to

each of the information recording media for part of recording information and the identification information corresponding to the information recording medium are recorded; the information reproducing apparatus comprising:

5       a detecting device for detecting the substituted recording information from the information recording medium;

          an identification information detecting device for detecting the identification information from the information recording medium;

10       a substitute information extracting device for extracting the substitute information from the detected substituted recording information;

          an identification information extracting device for extracting the identification information from the extracted substitute information;

15       a comparing device for comparing the identification information extracted from the substitute information with the identification information detected from the information recording medium; and

20       a reproducing device for reproducing the recording information obtained from the detected substituted recording information only if the identification information extracted from the substitute information matches the identification information detected from the information recording medium.

18.    The information reproducing apparatus according to Claim 17, wherein:

25       the substituted recording information is obtained by substituting the generated substitute information for part of encrypted recording information obtained through encryption of the recording information

by using a predetermined key information;

the key information and the obtained substituted recording information are recorded in the information recording medium corresponding to the identification information used for the generation  
5 of the substitute information;

the information reproducing apparatus further comprises a key information detecting device for detecting the key information from the information recording medium; and

the reproducing device decrypts the encrypted recording information obtained from the detected substituted recording information by using the detected key information and reproduces the recording information only if the identification information extracted from the substitute information matches the identification information detected from the information recording medium.  
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19. The information reproducing apparatus according to Claim 18, wherein the key information is contained in the substitute information and recorded in the information recording medium, and the key information detecting device detects the key information from the  
20 extracted substitute information.

20. The information reproducing apparatus according to Claim 18, wherein:

encrypted key information obtained through encryption of the  
25 key information by using the identification information is recorded in the information recording medium in place of the key information;

the key information detecting device detects the encrypted key

information from the information recording medium;

the information reproducing apparatus further comprises key information generating device for generating the key information through decryption of the detected encrypted key information by using the detected identification information; and

the reproducing device decrypts the encrypted recording information obtained from the detected substituted record by using the generated key information and reproduces the record information only if the identification information extracted from the substitute information matches the identification information detected from the information recording medium.

21. The information reproducing apparatus according to Claim 20, wherein:

the encrypted key information is obtained through the encryption of the key information by using encrypted identification information obtained from a predetermined encrypting process performed to the identification information and is recorded in the information recording medium; and

the key information generating device decrypts the detected encrypted key information by using the encrypted identification information obtained from the encrypting process performed to the detected identification information.

22. The information reproducing apparatus according to Claim 21, wherein the encrypting process encrypts information by using a predetermined unidirectional encrypting function.



23. The information reproducing apparatus according to Claim 17,  
wherein:

the substitute information is generated by using the encrypted  
5 identification information obtained by the predetermined encrypting  
process performed to the identification information corresponding to the  
information recording medium in which the substituted recording  
information is to be recorded;

the information reproducing apparatus further comprises an  
10 identification information generating device for extracting the encrypted  
identification information from the extracted substitute information,  
decrypting the encrypted identification information by a decrypting  
process corresponding to the encrypting process, and generating the  
identification information; and

15 the reproducing device reproduces the record information only if  
the generated identification information matches the identification  
information detected from the information recording medium.

24. The information reproducing apparatus according to Claim 17,  
20 wherein:

the substitute information is generated by using encrypted  
identification information obtained through a predetermined encrypting  
process using a predetermined unidirectional encrypting function  
performed to the identification information corresponding to the  
25 information recording medium in which the substituted recording  
information is to be recorded;

the information reproducing apparatus further comprises an

encrypted identification information extracting device for extracting the encrypted identification information from the extracted substitute information, and an encrypted identification information generating device for generating second encrypted identification information through the encrypting process by using the encrypting function performed to the detected identification information; and

the reproducing device reproduces the recording information only if the generated second encrypted identification information matches the extracted encrypted identification information.

25. The information reproducing apparatus according to Claim 17, wherein:

the substituted record information is generated by substituting the generated substitute information for part of added record information generated by adding a correction code for error correction to the recording information and is recorded in the information recording medium;

the substitute information extracting device extracts the substitute information from the substituted recording information before the error correction is executed; and

the information reproducing apparatus further comprises a correcting device for performing an error correction process to the detected substituted recording information by using the correction code.

26. The information reproducing apparatus according to Claim 17, wherein:

a mode of the substitution using the identification information in

the substituted recording information is varied by using the substitute information; and

the substitute information extracting device extracts the substitute information from the detected substituted recording information based on the mode of the substitution specified by using the detected identification information.

27. An information reproducing apparatus for reproducing information from an information recording medium in which identification information unique to each of the information recording media, encrypted recording information obtained through encryption of recording information to be recorded therein by using a predetermined key information, and encrypted key information obtained through encryption of the key information by using the identification information are recorded; the information reproducing apparatus comprising:

a detecting device for detecting the encrypted recording information and encrypted key information from the information recording medium;

an identification information detecting device for detecting the identification information from the information recording medium;

a key information generating device for decrypting the detected encrypted key information by using the detected identification information to generate the key information; and

a reproducing device for decrypting the detected encrypted recording information by using the generated key information to reproduce the recording information.

28. The information reproducing apparatus according to Claim 27, wherein:

substituted recording information generated by substituting the generated encrypted key information for part of the generated encrypted record information is recorded in the information recording medium;

the detecting device detects the substituted recording information from the information recording medium; and

the information reproducing apparatus further comprises a key information extracting device for extracting the encrypted key information from the detected substituted recording information.

29. An information recording method comprising:

a substitute information generating process of generating substitute information by using identification information unique to each of information recording media in which recording information is to be recorded;

a substituting process of generating substituted recording information by substituting the generated substitute information for part of the recording information; and

a recording process of recording the generated substituted recording information in the information recording medium corresponding to the identification information used for the generation of the substitute information.

30. The information recording method according to Claim 29, further comprising a generating process of encrypting the recording information by using a predetermined key information to generate encrypted

recording information, wherein the substituting process generates the substituted recording information by substituting the generated substitute information for part of the generated encrypted recording information, and the recording process records the key information, together with the generated substituted recording information, in the information recording medium corresponding to the identification information used for the generation of the substitute information.

31. An information recording method comprising:

a generating process of encrypting recording information to be recorded in an information recording medium by using a predetermined key information to generate encrypted recording information;

an encrypted key information generating process of encrypting the key information by using identification information recorded on the information recording medium as being unique to each of the information recording media to generate encrypted key information; and

a recording process of recording the generated encrypted recording information and the generated encrypted key information, in the information recording medium corresponding to the identification information used for the generation of the encrypted key information.

32. An information reproducing method for reproducing information from an information recording medium in which substituted recording information obtained by substituting substitute information generated by using identification information unique to each of the information recording media for part of recording information and the identification information corresponding to the information recording medium are

recorded; the information reproducing method comprising:

a detecting process of detecting the substituted recording information from the information recording medium;

an identification information detecting process of detecting the identification information from the information recording medium;

a substitute information extracting process of extracting the substitute information from the detected substituted recording information;

an identification information extracting process of extracting the identification information from the extracted substitute information;

a comparing process of comparing the identification information extracted from the substitute information with the identification information detected from the information recording medium; and

a reproducing process of reproducing the recording information obtained from the detected substituted recording information only if the identification information extracted from the substitute information matches the identification information detected from the information recording medium.

33. The information reproducing method according to Claim 32, wherein:

the substituted recording information is obtained by substituting the generated substitute information for part of encrypted recording information obtained through encryption of the recording information by using a predetermined key information;

the key information and the obtained substituted recording information are recorded in the information recording medium

corresponding to the identification information used for the generation of the substitute information;

the information reproducing method further comprises a key information detecting process of detecting the key information from the information recording medium; and

the reproducing process decrypts the encrypted recording information obtained from the detected substituted recording information by using the detected key information and reproduces the recording information only if the identification information extracted from the substitute information matches the identification information detected from the information recording medium.

34. An information reproducing method for reproducing information from an information recording medium in which identification information unique to each of the information recording media, encrypted recording information obtained through encryption of recording information to be recorded therein by using a predetermined key information, and encrypted key information obtained through encryption of the key information by using the identification information are recorded; the information reproducing method comprising:

a detecting process of detecting the encrypted recording information and encrypted key information from the information recording medium;

an identification information detecting process of detecting the identification information from the information recording medium;

a key information generating process of decrypting the detected encrypted key information by using the detected identification

information to generate the key information; and

a reproducing process of decrypting the detected encrypted recording information by using the generated key information to reproduce the recording information.

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35. A program information recording medium in which an information recording control program is readably recorded by a computer included in an information recording apparatus for recording information in an information recording medium, the information recording control program causing the computer to function as information recording control devices, the information recording control devices comprising:

a substitute information generating device for generating substitute information by using identification information unique to each of information recording media in which recording information is to be recorded;

a substituting device for generating substituted recording information by substituting the generated substitute information for part of the recording information; and

a recording device for recording the generated substituted recording information in the information recording medium corresponding to the identification information used for the generation of the substitute information.

36. The program information recording medium according to Claim 35, wherein the information recording control program causes the computer to function as information recording control devices, the



information recording control devices further comprising a generating device for encrypting the recording information by using predetermined key information to generate encrypted recording information,

the substituting device generates the substituted recording information by substituting the generated substitute information for part of the generated encrypted recording information, and

the recording device records the key information, together with the generated substituted recording information, in the information recording medium corresponding to the identification information used for the generation of the substitute information.

37. A program information recording medium in which an information recording control program is readably recorded by a computer included in an information recording apparatus for recording information in an information recording medium, the information recording control program causing the computer to function as information recording control devices, the information recording control devices comprising:

a generating device for encrypting recording information to be recorded in an information recording medium by using a predetermined key information to generate encrypted recording information;

an encrypted key information generating device for encrypting the key information by using identification information recorded on the information recording medium as being unique to each of the information recording media to generate encrypted key information; and

a recording device for recording the generated encrypted recording information and the generated encrypted key information, in

the information recording medium corresponding to the identification information used for the generation of the encrypted key information.

38. A program information recording medium in which an information reproducing control program is readably recorded by a computer included in an information reproducing apparatus for reproducing information from an information recording medium in which substituted recording information obtained by substituting substitute information generated by using identification information unique to each of the information recording media for part of recording information and the identification information corresponding to the information recording medium are recorded, the information reproducing control program causing the computer to function as information reproducing control devices, the information reproducing control devices comprising:

a detecting device for detecting the substituted recording information from the information recording medium;

an identification information detecting device for detecting the identification information from the information recording medium;

a substitute information extracting device for extracting the substitute information from the detected substituted recording information;

an identification information extracting device for extracting the identification information from the extracted substitute information;

a comparing device for comparing the identification information extracted from the substitute information with the identification information detected from the information recording medium; and

a reproducing device for reproducing the recording information obtained from the detected substituted recording information only if the identification information extracted from the substitute information matches the identification information detected from the information recording medium.

39. The program information recording medium according to Claim 38 wherein:

the substituted recording information is obtained by substituting the generated substitute information for part of encrypted recording information obtained through encryption of the recording information by using a predetermined key information;

the key information and the obtained substituted recording information are recorded in the information recording medium corresponding to the identification information used for the generation of the substitute information;

the information reproducing control program causes the computer to function as information reproducing control devices, the information reproducing control devices further comprising a key information detecting device for detecting the key information from the information recording medium; and

the reproducing device decrypts the encrypted recording information obtained from the detected substituted recording information by using the detected key information and reproduces the recording information only if the identification information extracted from the substitute information matches the identification information detected from the information recording medium.

40. An information recording medium in which an information reproducing control program is readably recorded by a computer included in an information reproducing apparatus for reproducing information from an information recording medium in which substituted recording information obtained by substituting substitute information generated by using identification information unique to each of the information recording media for part of recording information and the identification information corresponding to the information recording medium are recorded, the information reproducing control program causing the computer to function as information reproducing control devices, the information reproducing control devices comprising:

a detecting device for detecting the encrypted recording information and encrypted key information from the information recording medium;

an identification information detecting device for detecting the identification information from the information recording medium;

a key information generating device for decrypting the detected encrypted key information by using the detected identification information to generate the key information; and

a reproducing device for decrypting the detected encrypted recording information by using the generated key information to reproduce the recording information.